

REMARKS

Claims 1-17 are pending in the application. Claims 18-43 are cancelled herewith. The Examiner has rejected Claims 3, 12-14 under 35 U.S.C. Section 112, Second paragraph. Claims 1, 5, 6, 9, 12, 14, stand rejected under 35 U.S.C. Section 102(b). Claims 2, 3, 8, 10, 11, 15 stand rejected under 35 U.S.C. Section 103(a). Claims 4, 7, 16 and 17 are objected to.

The Examiner has rejected Claims 3, 12-14 under 35 U.S.C. Section 112, Second Paragraph as being indefinite for failing to particularly point out and distinctively claim the subject matter which is regarded as the invention. In particular, the Examiner notes that in Claim 3 the limitation "the first sensor head" lacks sufficient antecedent basis. The Applicant has amended Claim 3 per the recommendation of the Examiner.

The Examiner further notes that in Claim 12, "the first circuit board" limitation lacks proper antecedent basis. The Applicant has amended Claim 12 per the recommendation of the Examiner. Based on these amendments the claims should now be allowable under 35 U.S.C. Section 112, Second Paragraph.

The Examiner has rejected Claims 1, 5, 6, 9, 12, 14 under 35 U.S.C. Section 102(b) as being anticipated by U.S. Patent No. 5,821,405 (Dickey et al.). In light of the arguments made below the Applicant respectfully traverses the rejection.

The Applicant's invention as described in the claims is a sensor head apparatus configured to electrically and mechanically interconnect with one or more sensor head components. The plurality of ports incorporated into the sensor head are configured such the sensor head components are insertable and removable through application of only a linear force on the sensor head component.

Dickey et al. discloses a modular water quality measurement apparatus which include a universal sensor interface cap. The sensors are interconnected into through use of threaded collars.

The Applicant has amended Claim 1 to now recite that the engagement and disengagement of the sensor head component is through the application of only a linear force. This differentiates the Applicant's invention from Dickey et al. in that engagement and disengagement would not occur in the Dickey et al. apparatus if only a linear force were applied to the sensor component. The Applicant's invention is not anticipated by Dickey et al. because this reference does not teach the ports in sensor head are configured to engage and disengage with one or more interchangeable sensor head components in one of the plurality of ports through the application of only a linear force upon the interchangeable sensor head component. In Dickey et al. it is described that the sensors which are interconnected in the cap through use of threaded collars. (See Column 4, Lines 33-35) This implies that a rotational force must be applied on the sensor component to establish a connection.

It is further noted in Dickey et al. that the cap provides mechanical support for the sensors 16 by mating to the threaded collars (which are not shown) on the sensors. It is further noted that:

The sensors, 16 and 16', are comprised of sensor sensing element 28 attached to a sealed connector 36 with a threaded collar (not shown). The sensor sensing element 28 are no different than the sensing elements known in the art or hereafter developed. The sealed connector 36 are conformed so as to provide the common mechanical and electrical interface disclosed in the invention. That is, all sensors 16 and 16' are uniformed and share a common connector and the same threaded collar, for example, but the sensing element 28 can be as varied as the types of measurements to be made. (See Column 5, Lines 54-65)

In the embodiments discussed in Dickey et al., it is clear that in order to establish an electrical connection between the sensors 16 and electronics interface cap 12, the sensor and threaded collar are rotated within the mechanical sensor connection 14. This reference does not teach that these sensors or any of their components may be inserted into the cap through application of only a linear force.

The Applicant does note that the Dickey et al. reference states that "any other appropriate mating method known in the art may be utilized." (See Column 4, Lines 36-37) The applicant argues that this statement does not broaden the scope of the Dickey et al. reference to anticipate sensor head components which are insertable through use of only a linear force. This is so because an electrical connector which is employable for a rotatable connection would be configured in a very different way than a connector which connects through application of only a linear force.

The Examiner further notes that Dickey et al. does disclose application of a linear force, and notes in particular that "engagement and disengagement of the sensor 16 within the plurality connections 14 occur through application of a linear motion (depicted by arrows) upon the sensor. Linear force would inherently be required to affect the linear motion depicted." (See Pages 3-4 of the Examiner's Action)

The applicant notes in Dickey et al. that there are actually two forces applied to the sensor head component. The first force being a rotational force applied to the component such that the threads engage and the threaded portions move relatively to each other. The other force is exerted by the threads in the sensor cap on the threads of the component which moves the component, substantial linearly, in a chosen direction depending on the type of rotational force applied (clockwise or counter-clockwise). As noted above, the Applicant has amended Claim 1

to now claim engagement through only application of only linear force. This is not taught in Dickey et al.. As such, in light of the arguments made above the Examiner's rejection under 35 U.S.C. Section 102(b) is respectfully traversed.

The Examiner has rejected Claims 2 and 3 under 35 U.S.C. Section 103(a) as being unpatentable over Dickey et al. in view of U.S. Patent No. 6,359,430 (Palfenier et al.). In light of the arguments made below the Applicant respectfully traverses the rejection.

Palfenier et al. discloses a vehicle speed sensor which employs a o-ring groove and o-ring for sealing a sensor component within a housing. The Applicant's invention is non-obvious in light of the combined references because neither reference teaches or suggests a sensor head configured to receive a sensor head component through application of only a linear force. As was discussed above, the Dickey et al. reference only teaches the use of threaded sensor head components. Dickey et al. does not teach or suggest the use of a o-ring groove or o-ring in order to seal the sensor head component. Palfenier et al. does not teach how the apparatus is assembled and more particularly a plurality of ports which receive and engage a component.

Specifically with regards to Claim 3, neither Dickey et al. or Palfenier et al. teach the use of the first and second diameters for the bore of a port in a sensor head component. As is noted by the Examiner, Dickey et al. does not address anything like this. In Palfenier et al., it is noted that the housing includes an inner bore against which the o-ring contacts and provides a seal. As is further noted by the Examiner, what is not shown is a second diameter for within which the o-ring is configured to expand within to provide a resistive force for withdrawing the sensor components. In the Palfenier et al. the o-ring is merely provided for the purpose of sealing. It does not provide the function of resisting movement of a sensor body within the housing.

The two different bores are an important feature of the Applicant's invention for creating the resistive force, and if that was one of the purposes of the o-ring in Palfenier et al. it would have been shown and described in detail. As such the Examiner's rejection under 35 U.S.C. Section 103(a) is respectfully traversed.

The Examiner has rejected Claims 8, 10, 11 and 15 under 35 U.S.C. Section 103(a) as being unpatentable over Dickey et al. in view of a DataSonde brochure entitled "New Series 4a Water Quality Instrument From Hydrolab" (Hydrolab Brochure). In light of the arguments made below the applicant respectfully traverses the rejection.

The Hydrolab brochure discloses a multi-parameter water quality instrument which includes a sensor head within which one or more components are insertable. What is not disclosed by this reference is how the sensor head components are connected into the sensor head. This reference is merely directed towards discussing the different parameters which are measured by this instrument, not its mechanical features. More specifically, this reference does not teach or suggest that the sensor head components are engageable and disengageable through use of only a linear force. Further, the combination of references does not make obvious the Applicant's invention because neither reference teaches or suggest a component which is engageable and disengageable through use of only a linear force. As such because neither the Dickey et al. or Palfenier et al. references either alone or in combination of the Hydrolab brochure, teach or suggest this unique feature, the Applicant's invention is non-obvious in light of the cited references.

Based upon the foregoing, Applicants believe that all pending claims are in condition for allowance and such disposition is respectfully requested. In the event that a telephone

conversation would further prosecution and/or expedite allowance, the Examiner is invited to contact the undersigned.

Respectfully submitted,

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